ORDER NO. MKE9109M396

B6

Service Manual

COMBINATION-VCR

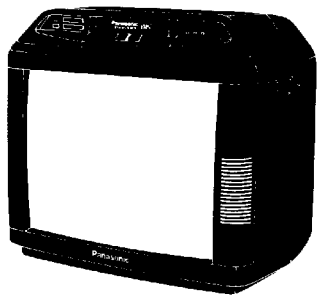
Panasonic Omnivision VHS

Simplified

Please use this tag for indication on the original Service Manual. **PV-M2021-K**

PV-M2021-K

PV-M2021-K



Please use this manual together with the Service Manual for Order No. MKE9106M385 Model No. PV-M2021.

Subject: Differences between PV-M2021-K & PV-M2021

Model PV-M2021-K is similar to model PV-M2021.

Use this Service Manual MKE9109M396 when servicing this model.

SPECIFICATIONS

ITEM		SPECIFICATION
VCR	Video	Head : 2 rotary heads helical scanning system
		Input Level : VIDEO IN Jack (Phono type) 1.0 Vp-p 75Ω unbalanced
		Signal-to-Noise Ratio : SP : more than 43dB
		LP/SLP : more than 41dB
		Horizontal Resolution : Color/Monochrome : more than 230 lines
	Audio	Head : Normal Mono : 1 stationary head
		Input Level : AUDIO IN Jack (Phono type) - 10dB 50kΩ unbalanced
		Frequency Response : Normal Mono : SP : 100Hz ~ 8kHz
		LP : 100Hz ~ 6kHz
		SLP : 100Hz ~ 5kHz
		Signal-to-Noise Ratio : Normal Mono : SP : more than 42dB
		LP/SLP : more than 40dB
		Wow and Flutter : Normal Mono : SP : Less than 0.2% WRMS
		LP : Less than 0.3% WRMS
		SLP : Less than 0.4% WRMS
	Tuner	Broadcast Channels : VHF 2 ~ 13, UHF 14 ~ 69
		CATV Channels : Midband A through I (14 ~ 22)
		Superband J through W (23 ~ 36)

ITEM		SPECIFICATION
VCR	Tuner	CATV Channels : Hyperband AA ~ BBB (37 ~ 64)
		Lowband A-5 ~ A-1 (95 ~ 99)
		Special CATV channel 5A (01)
		Ultraband 65 ~ 94
	Tape Speed	SP : 1-5/16 i.p.s (33.35mm/sec), LP : 21/32 i.p.s (16.67mm/sec),
		SLP : 7/16 i.p.s (11.12mm/sec)
		Record/Playback Time : 8 Hrs with 160min. type tape used in SLP mode
		FF/REW Time : Less 5min. (120min. type tape)
	Tape Format	Tape width 1/2" (12.7mm) high density tape
DISPLAY	Picture Tube	20 inch measured diagonal 90° deflection
GENERAL	Power	Source : 120V AC ± 10% 60Hz ± 0.5%
		Consumption : 112 watts
	Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal
	Operating Condition	41°F (5°C) ~ 104°F (40°C) (Temperature)
		10% ~ 75% (Humidity)
	Dimension	21-5/8" (550mm) (W) × 19-14/16" (506mm) (H) × 18-3/4" (476mm) (D)
	Weight	Approx. 57lbs (26kg)

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Panasonic

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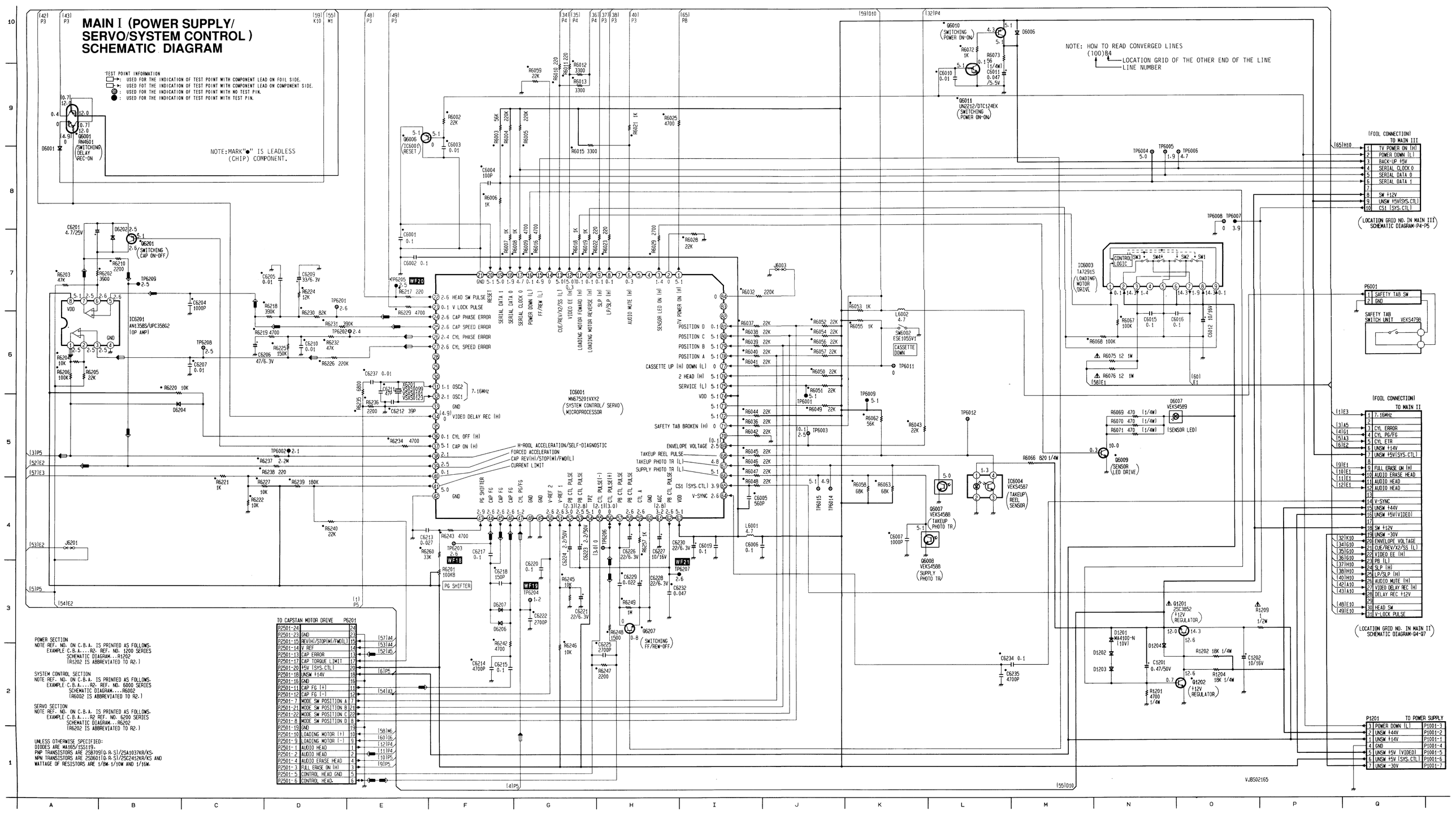
MAIN I (POWER SUPPLY/ SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM



POWER SUPPLY SECTION	
TRANSISTOR	
Q1201	O-3
Q1202	O-2
CONNECTOR	
P1201	Q-2

SERVO SECTION	
TRANSISTOR	
Q6201	B-7
Q6207	H-3
IC	
IC6201	B-6
CONNECTOR	
P6201	D-3
TEST POINT	
TP6201	D-7
TP6202	D-6
TP6203	F-4
TP6204	G-3
TP6205	E-7
TP6206	H-4
TP6207	H-3
TP6208	C-6
TP6209	B-7
ADJUSTMENT	
R6201	F-3

SYSTEM CONTROL SECTION	
TRANSISTOR	
Q6001	A-9
Q6006	E-9
Q6007	L-4
Q6008	K-3
Q6009	N-5
Q6010	L-10
Q6011	L-9
IC	
IC6001	G-6
IC6003	M-7
IC6004	L-4
CONNECTOR	
P6001	Q-7
TEST POINT	
TP6001	J-5
TP6002	D-5
TP6003	J-5
TP6004	N-8
TP6005	N-8
TP6006	O-8
TP6007	O-8
TP6008	O-8
TP6009	K-6
TP6011	K-6
TP6012	L-5
TP6014	J-4
TP6015	J-4

MAIN II (AUDIO/SIGNAL PROCESS/CYLINDER DRIVE) SCHEMATIC DIAGRAM

REC VIDEO SIGNAL | PB VIDEO SIGNAL | REC AUDIO SIGNAL | PB AUDIO SIGNAL | CYLINDER SERVO

IC3001 VCR50167-A (LUMINANCE /CHROMINANCE MAIN PROCESS)

U7001 VEQS0505 — UHF/VHF TUNER/TV DEMODULATOR ASS'Y

DL3001 VLDS0042 — COMB FILTER

IC2601 AN3813K (CYLINDER MOTOR DRIVE)

IC4151 AN5265 (TV SOUND OUTPUT)

IC4001 LA7282M (AUDIO REC/PB EQUALIZER)

IC3003 MB90073-103A (CHARACTOR GENERATOR)

IC3002 MN3850S (CCD 1H DELAY)

IC3005 IC75U04F-K (OSD CLOCK AMP)

IC7101 C04053BCM UPD4053BG (INPUT SELECT)

HEAD AMP C.B.A. UNIT

TO HEAD AMP P2601	
P3501-19	LP/SLP/EE (H)
P3501-2	DELAY REC (H)
P3501-14	PB LUMA
P3501-15	REC CHROMA
P3501-16	PB CHROMA
P3501-17	REC LUMA
P3501-12	SW +12V
P3501-13	PB +5V
P3501-18	ENVELOPE
P3501-11	GND
P3501-1	HEAD SW
P3501-3	MAIN COIL 3
P3501-4	MAIN COIL 2
P3501-5	MAIN COIL 1
P3501-6	HE-
P3501-7	VH+
P3501-8	HE+
P3501-9	GND
P3501-10	UNSW +14V

P3502-1 VIDEO L HEAD; P3502-2 VIDEO R HEAD; P3502-3; TP3501

P3001	TO TV MAIN
1 VIDEO	K1- 1
2 GND	K1- 2
3 SW +12V	K1- 3
4 H-SYNC	K1- 4
5 V-SYNC	K1- 5

P4151	TO TV MAIN
2 +17V	K3- 2
1 GND	K3- 1

P4152	TO SPEAKER
2 AUDIO	JUMPER
1 GND	JUMPER

(FOIL CONNECTION) TO MAIN III

1	SIGNAL (L)
2	
3	CS2 (FS)
4	
5	OSD-CS (L)
6	OSD DATA
7	OSD CLOCK
8	SERIAL CLOCK O
9	SERIAL DATA O
10	
11	
12	
13	
14	
15	VOLUME CONTROL
16	
17	
18	
19	
20	VIDEO LINE (H)
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

LOCATION GRID NO IN MAIN III SCHEMATIC DIAGRAM-01-03

(FOIL CONNECTION) TO MAIN I

1	7.16MHz
2	
3	CYL ERROR
4	CYL PG/FG
5	CYL ETR
6	UNSW +14V
7	UNSW +5V(SYS. CTL)
8	
9	FULL ERASE ON (H)
10	AUDIO ERASE HEAD
11	AUDIO HEAD
12	AUDIO HEAD
13	
14	V-SYNC
15	UNSW +44V
16	UNSW +5V(VIDEO)
17	
18	SW +12V
19	UNSW -30V
20	ENVELOPE VOLTAGE
21	CUE/REV/X2/SS (L)
22	VIDEO EE (H)
23	PB (L)
24	SLP (H)
25	LP/SLP (H)
26	AUDIO MUTE (H)
27	VIDEO DELAY REC (H)
28	DELAY REC +12V
29	
30	HEAD SW
31	V-LOCK PULSE

LOCATION GRID NO.IN MAIN I SCHEMATIC DIAGRAM-03-05

TEST POINT INFORMATION
- →: USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON FOIL SIDE.
- →: USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON COMPONENT SIDE.
- ⊘: USED FOR THE INDICATION OF TEST POINT WITH NO TEST PIN.
- ●: USED FOR THE INDICATION OF TEST POINT WITH TEST PIN.

NOTE:MARK"●" IS LEADLESS (CHIP) COMPONENT.

NOTE: HOW TO READ CONVERGED LINES
(100)B4 — LOCATION GRID OF THE OTHER END OF THE LINE; LINE NUMBER

VIDEO SIGNAL PROCESS SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A....R2. REF. NO. 3000 SERIES SCHEMATIC DIAGRAM...R3002 (R3002 IS ABBREVIATED TO R2.)

AUDIO SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A....R2. REF. NO. 4000 SERIES SCHEMATIC DIAGRAM...R4002 (R4002 IS ABBREVIATED TO R2.)

DEMODULATOR SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A....R2. REF. NO. 7000 SERIES SCHEMATIC DIAGRAM...R7002 (R7002 IS ABBREVIATED TO R2.)

CYLINDER MOTOR DRIVE SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A....R2. REF. NO.2600 SERIES. SCHEMATIC DIAGRAM....R2602 (R2602 IS ABBREVIATED TO R2.)

UNLESS OTHERWISE SPECIFIED:
PNP TRANSISTORS ARE 2SB709(Q-R-S)/2SA1037K(R/KS/MSB709(A-S).
NPN TRANSISTORS ARE 2SD601(Q-R-S)/2SC2412K(R/KS/MSB601(A-S).
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/8W.1/10W AND 1/16W.

VJBS02165

AUDIO SECTION

TRANSISTOR	
Q4101	N-6
IC	
IC4001	O-3
IC4151	N-8
CONNECTOR	
P4001	O-2
P4151	Q-5
P4152	Q-4
TEST POINT	
TP4001	K-6
TP4002	P-6
TP4003	P-3
TP4101	L-6
TP4102	L-7
TPGND4	P-4

DEMODULATOR SECTION

TRANSISTOR	
Q7001	I-9
Q7002	I-9
Q7004	J-10
Q7006	K-9
Q7101	C-3
IC	
IC7101	B-2

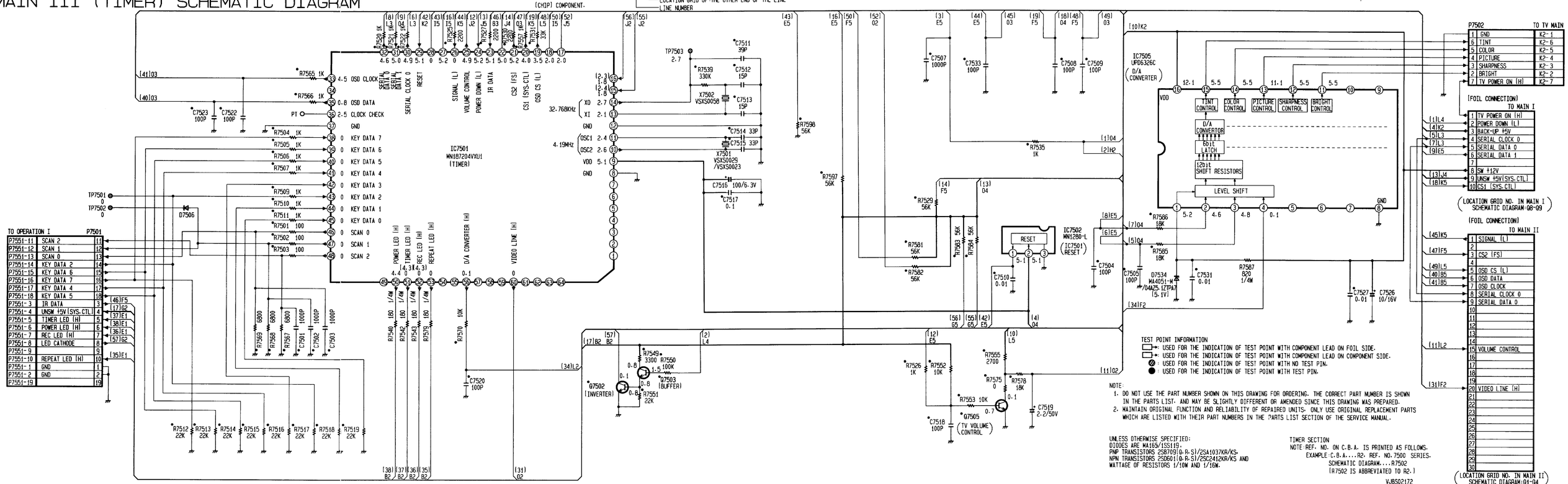
CYLINDER DRIVE SECTION

IC	
IC2601	M-9
CONNECTOR	
P2601	K-5

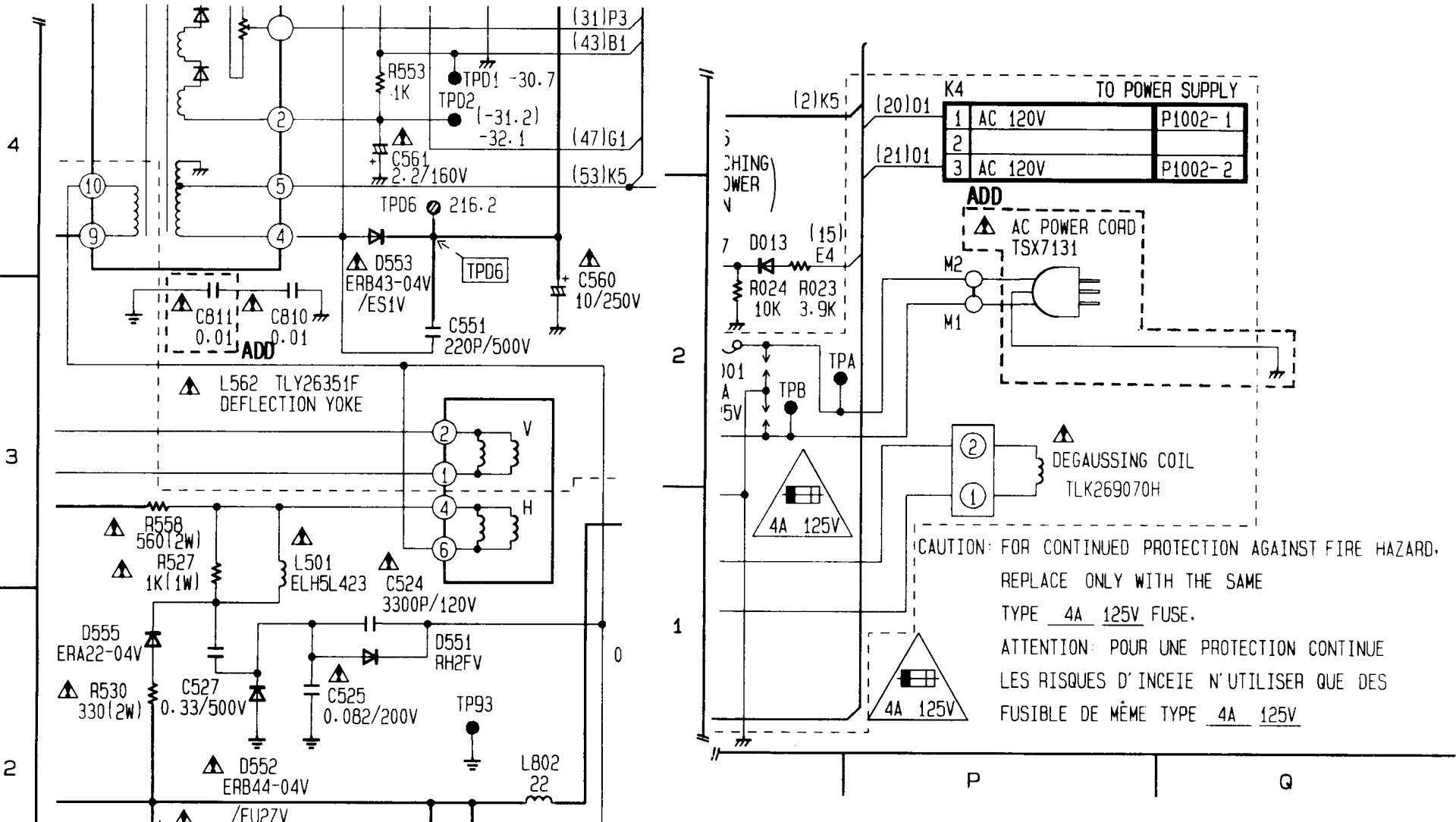
VIDEO SIGNAL PROCESS SECTION

TRANSISTOR	
Q3001	A-7
Q3002	C-7
Q3003	C-7
Q3006	E-7
Q3007	E-2
Q3010	H-4
Q3012	I-1
IC	
IC3001	A-10
IC3002	F-4
IC3003	E-2
IC3005	C-2
CONNECTOR	
P3001	I-2
TEST POINT	
TP3001	I-4
TP3002	E-9
TP3003	F-3
TP3004	F-1
TP3005	F-1
TP3006	D-9
TP3007	F-9
TP3008	F-9
TP3010	B-3
ADJUSTMENT	
R3044	H-5

MAIN III (TIMER) SCHEMATIC DIAGRAM

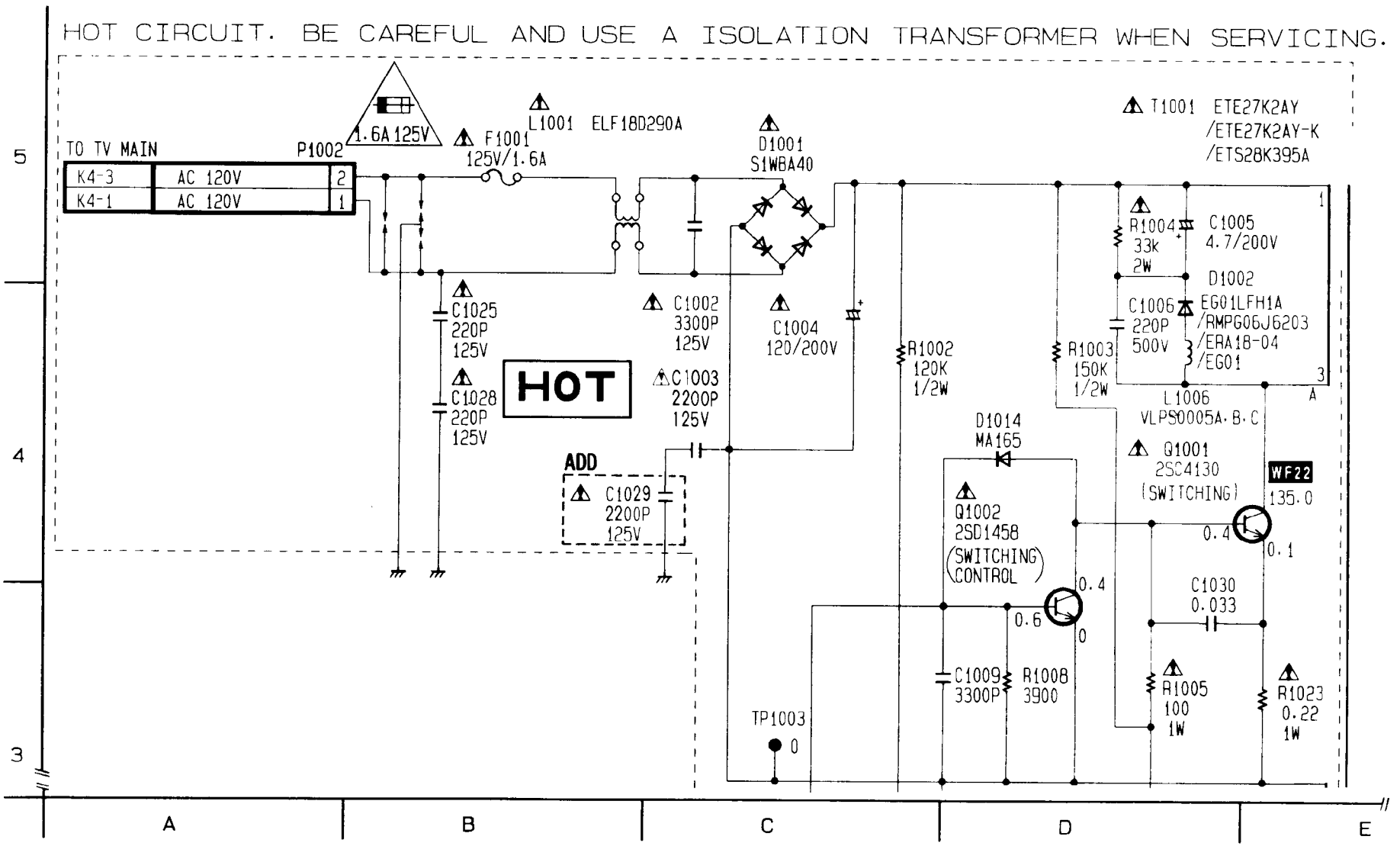


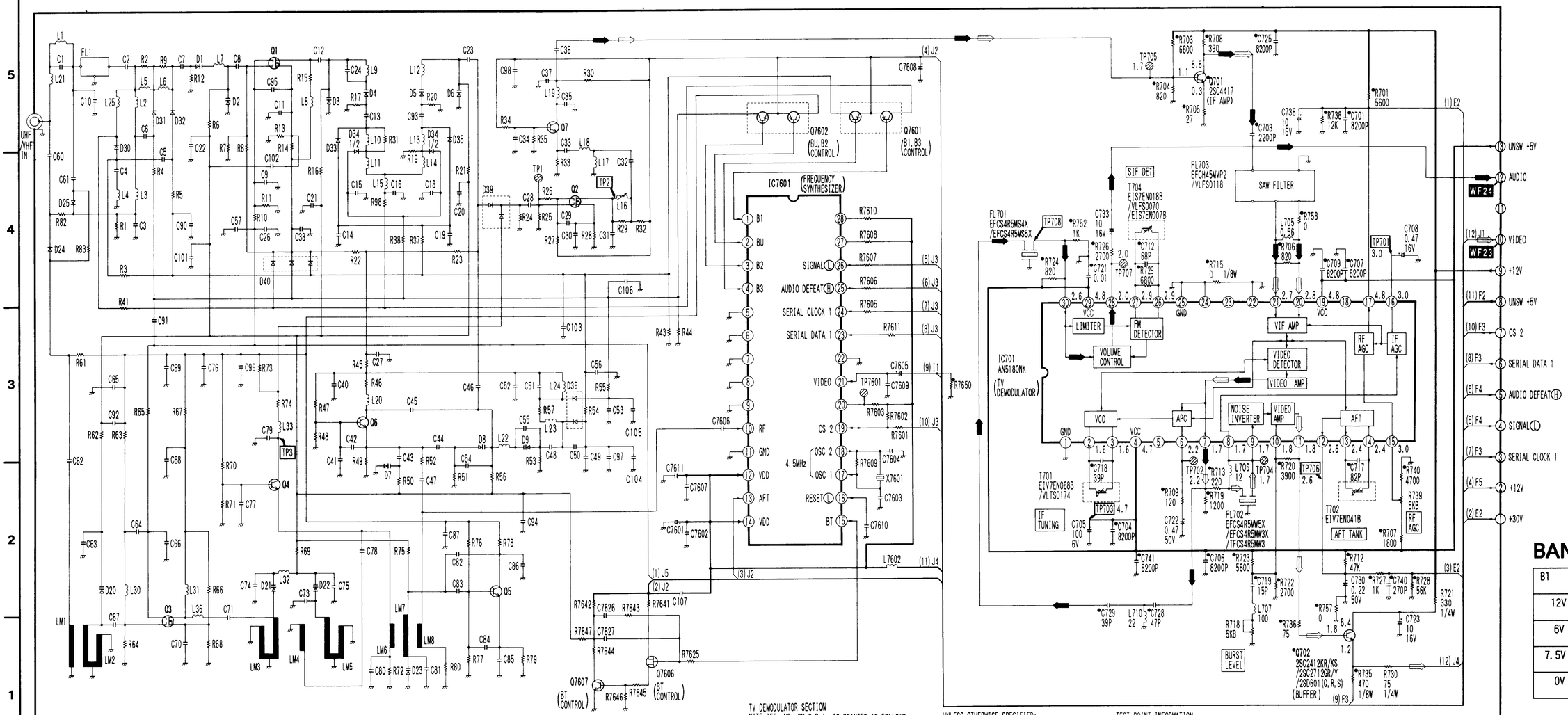
TV MAIN SCHEMATIC DIAGRAM



II SCHEMATIC DIAGRAM

POWER SUPPLY SCHEMATIC DIAGRAM





UHF/VHF TUNER/TV DEMODULATOR SCHEMATIC DIAGRAM

TV DEMODULATOR SECTION
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE:C.B.A....R2, REF. NO. 700 SERIES SCHEMATIC DIAGRAM...R702 (R702 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS ARE 1/ 8W / 1/16W.

TEST POINT INFORMATION
: USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON FOIL SIDE.
: USED FOR THE INDICATION OF TEST POINT WITH NO TEST PIN.

VJBS07256

BAND SELECTION CHART

B1	B2	B3	BU	CHANNEL
12V	0V	0V	0V	2CH～6CH 5A, A-5～A-3
6V	12V	0V	0V	7CH～13CH A～1, A-2, A-1
7.5V	11.5V	12V	0V	J～EEE
0V	0V	0V	12V	14CH～69CH